Howard Hughes Medical Institute

Consolidated Financial Statements
for the years ended August 31, 2020 and 2019
and Report of Independent Auditors Thereon

Report of Independent Auditors

To the Trustees of the Howard Hughes Medical Institute

We have audited the accompanying consolidated financial statements of Howard Hughes Medical Institute and its subsidiaries (the "Institute"), which comprise the consolidated statements of financial position as of August 31, 2020 and 2019, and the related consolidated statements of activities and of cash flows for the years then ended.

Management's Responsibility for the Consolidated Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of consolidated financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the consolidated financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the consolidated financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the consolidated financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Institute's preparation and fair presentation of the consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Howard Hughes Medical Institute and its subsidiaries as of August 31, 2020 and 2019 and the changes in their net assets and their cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

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Emphasis of Matter

As discussed in Note 2 to the consolidated financial statements, the Institute changed the manner in which it accounts for leases in 2020. Our opinion is not modified with respect to this matter.

PricewaterhouseCoopers LLP

McLean, Virginia
November 20, 2020

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Financial Position
August 31, 2020 and 2019

(In thousands)

Assets	2020	2019
Cash and cash equivalents	$ 1,259,828	$ 749,409
Escrowed bond proceeds	12,495	41,805
Due from brokers	118,631	86,356
Securities pledged as collateral	603,892	-
Securities lending collateral	44,395	40,818
Investment receivables	41,035	86,066
Investments and derivative assets	20,765,522	20,707,541
Deferred income taxes, net	3,527	12,895
Land, buildings, laboratory space, and equipment, net	763,209	749,921
Right-of-use assets, net	151,670	-
Other assets	76,253	69,601
Total assets	$ 23,840,457	$ 22,544,412

Liabilities	2020	2019
Accounts payable and accrued liabilities	$ 149,790	$ 150,855
Investment payables	41,596	59,344
Investments and derivative liabilities	378,479	728,559
Obligation to return securities lending collateral	44,395	40,818
Repurchase obligations	604,998	-
Grant commitments	82,363	103,647
Post-retirement/employment obligations	339,989	501,051
Capital financing		
Note payable	40,376	40,376
Financing lease obligations	5,891	13,221
Bonds payable	769,072	767,255
Operating lease liabilities	151,607	-
Total liabilities	2,608,556	2,405,126
Net assets	21,231,901	20,139,286
Total liabilities and net assets	$ 23,840,457	$ 22,544,412

The accompanying notes are an integral part of these consolidated financial statements.

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Activities
For the Years Ended August 31, 2020 and 2019

(In thousands)

Revenue	2020	2019
Net investment return	$ 1,739,874	$ 643,865
Intellectual property and other income	17,139	105,303
Total revenue	1,757,013	749,168
Expenses		
Program activities		
Medical research	653,348	660,393
Science education and other scientific programs	66,450	46,132
General and administrative	93,283	107,656
Deferred tax benefit, net	9,367	(12,895)
Loss on extinguishment of debt	-	38,277
Total expenses	822,448	839,563
Increase/(decrease) in net assets from operating activities	934,565	(90,395)
Other changes		
Other components of net periodic pension costs	173,616	(124,112)
Postretirement changes other than net periodic pension cost	(15,566)	(15,566)
Total increase/(decrease) in net assets	1,092,615	(230,073)
Net assets, beginning of year	20,139,286	20,369,359
Net assets, end of year	$ 21,231,901	$ 20,139,286

The accompanying notes are an integral part of these consolidated financial statements.

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Cash Flows
For the Years Ended August 31, 2020 and 2019

(In thousands)	2020	2019
Change in net assets	$ 1,092,615	$ (230,073)
Adjustments to reconcile change in net assets to net cash used for operating activities		
Depreciation and amortization	86,489	78,144
Postretirement changes other than net periodic costs	15,566	15,566
Loss on disposal of assets	4,458	5,585
Loss on extinguishment of debt	-	38,277
Income earned from stock dividends	(14,324)	(3,065)
Deferred tax benefit	9,367	(12,895)
Realized gains on investments and derivative contracts, net	(1,300,100)	(1,161,520)
Change in unrealized (gains)/losses of investments and derivative contracts	(404,909)	580,725
Change in receivables and other assets	50,442	(38,602)
Change in due from brokers	(32,274)	(37,064)
Change in securities pledged as collateral	(603,892)	-
Change in operating payables and accrued liabilities	(30,327)	22,004
Change in grant commitments	(21,284)	(53,674)
Change in post-retirement/employment obligations	(176,628)	115,170
Net cash used for operating activities	(1,324,801)	(681,422)
Cash flows from investing activities		
Building and equipment purchases	(102,980)	(153,673)
Proceeds from sales, maturities of investments, securities sold short and derivative contracts	16,142,299	13,739,779
Purchases of investments, derivative contracts and purchases to cover securities sold short	(14,831,077)	(11,610,981)
(Redemption)/addition of securities lending collateral investments	(3,577)	129,536
Net cash provided by investing activities	1,204,665	2,104,661
Cash flows from financing activities		
Proceeds from issuance of long-term debt	40,376	51,773
Proceeds from failed sale-leaseback transactions	-	3,442
Payments to redeem long-term debt	(40,376)	(1,200,000)
Payments of debt issuance costs	-	(773)
Payments of debt extinguishment costs	-	(34,633)
Principal payments under financing lease obligations	(7,330)	(8,125)
Proceeds from repurchase obligations	604,998	-
Proceeds/(repayments) from/(to) securities lending program	3,577	(129,536)
Net cash provided by/(used for) financing activities	601,245	(1,317,852)
Net increase in cash	481,109	105,387
Cash, cash equivalents and restricted cash, beginning of year	791,214	685,827
Cash, cash equivalents, and restricted cash, end of year	$ 1,272,323	$ 791,214

The accompanying notes are an integral part of these consolidated financial statements.

HOWARD HUGHES MEDICAL INSTITUTE

Consolidated Statements of Cash Flows
For the Years Ended August 31, 2020 and 2019

	2020	2019
Supplemental disclosure of non-cash investing and financing activities		
Accruals for equipment and construction costs included in *Accounts payable and accrued liabilities*	$ 7,334	$ 4,108
Operating lease assets and related liabilities	13,293	-
Total cash, cash equivalents, and restricted cash		
Cash and cash equivalents	$ 1,259,828	$ 749,409
Escrowed bond proceeds	12,495	41,805
Total cash, cash equivalents, and restricted cash	$ 1,272,323	$ 791,214

The accompanying notes are an integral part of these consolidated financial statements.

1. ORGANIZATION

Howard Hughes Medical Institute ("HHMI" or the "Institute") was established for the purpose of promoting knowledge within the basic sciences, principally medical research and education, and the effective application of this knowledge for the benefit of humanity. The Institute conducts basic biomedical research at its Janelia Research Campus ("Campus") located in Loudoun County, Virginia, and at universities, hospitals, and other not-for-profit research institutions ("host institutions") throughout the U.S. under the terms of collaboration agreements.

In addition to its basic research activities, the Institute funds grants to both institutions and individuals in support of a wide range of science and research-related initiatives, including precollege and undergraduate science education, pre- and post-doctoral research fellowships, and international research activities. Most of the Institute's grant awards to individuals are fellowships administered by the awardee's institution for the benefit of the awardee.

For many years, the Institute has created science education resources for use by classroom teachers and has distributed these broadly without charge. The Institute also supports a science film initiative, which develops, produces, and disseminates science programming through broadcast television and other media channels. Film footage produced through this initiative may also be used to expand and enhance the science education resources designed for classroom use.

The Institute's investments are its principal source of financial support. The Institute's long-range investment goal is to manage the fund in a prudent manner that will support the Institute's programs in perpetuity. A majority of the Institute's spending is on programs that involve long-term commitments: the Institute's medical research program at host institutions and Janelia Research Campus, in which it makes multi-year employment, budget, and other spending commitments to its Investigators and other HHMI laboratory heads, and a grants program in which the Institute makes multi-year grant commitments for science education and to support research by early-career scientists. These attributes of the Institute's mode of operation present the need to balance longer-term investment fund growth, stabilize investment returns, and maintain liquidity.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The consolidated financial statements include the accounts of the Institute's wholly owned subsidiaries, which are used primarily in connection with investment activities. All intra-company transactions and accounts have been eliminated.

<u>Basis of Presentation</u>
The consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States of America ("GAAP"). These principles require management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported revenues and expenses during the reporting period. Actual results could differ from those estimates.

<u>Cash and Cash Equivalents</u>
Cash and cash equivalents are recorded at amortized cost, which approximates fair value and include both U.S. and non-U.S. currency and short-term interest-bearing marketable instruments with original maturities of 90 days or less from the initial purchase date. The purchases and sales of cash equivalents

are not presented on the Consolidated Statements of Cash Flows. These balances are held at the Institute's custodians, prime brokers, clearing agents, and banking institutions for investment and working capital purposes.

The total cash and cash equivalents maintained at various institutions exceeds the amount guaranteed by federal agencies and, therefore, bears some risk. The Institute has not experienced any loss due to this risk. Interest earned on cash and cash equivalents is recognized in *Net investment return* within the Consolidated Statements of Activities.

Foreign Currency Translation

Securities and cash denominated in foreign currencies are translated into U.S. dollar equivalents using year-end spot foreign currency exchange rates. Investment payables and receivables are valued using either spot or interpolated forward rates as applicable based on the expected settlement date. Purchases and sales of financial instruments, and their related income and expenses, are translated at the rate of exchange on the respective date of such transactions. The Institute includes realized gains/(losses) and unrealized appreciation/(depreciation) on investments and derivative financial instruments resulting from foreign currency changes in *Net investment return* on the Consolidated Statements of Activities. The Institute does not isolate that portion of the results of operations resulting from changes in foreign exchanges rates on securities and derivative contracts from the fluctuations arising from changes in market price of securities and derivative contracts held. Such fluctuations are included in *Net investment return*. The Institute may be exposed to risks that the exchange rate of the U.S. dollar relative to other currencies may change in a manner that has an adverse effect on the reported value of that portion of the Institute's assets or liabilities that is denominated in currencies other than the U.S. dollar.

Escrowed Bond Proceeds

The Institute issued approximately $51.8 million of capital appreciation bonds in June 2019 to finance the construction costs of an apartment building at the Janelia Research Campus in Loudoun County, Virginia. Funds received from the initial issuance and any income from investments of these funds are maintained in a separate segregated trust account established by the Trustee. These funds are restricted and used to finance, refinance or reimburse the Institute for costs of the construction project, including any costs of issuing the bonds. The Institute invests the funds on deposit in securities issued and explicitly guaranteed as to principal and interest by the U.S. or any agency or instrumentality thereof, and repurchase agreements in respect of U.S. Government Securities.

Restricted Funds

The Institute generally does not accept donations or other contributions, but has made several exceptions, including accepting a very limited number of grants from other not-for-profit organizations to support specific research activities at the Janelia Research Campus, and accepting funding from a few other not-for-profit organizations that are collaborating with the Institute on grant programs. These grants entail restrictions on how the funds may be used. As a result, there are restrictions on net assets, which the Institute considers immaterial to its financial statements.

Intellectual Property

The Institute receives licensing fees and royalty income in connection with the commercialization of intellectual property created by its scientists. Licensing fees and royalty income are recorded as revenue in the Consolidated Statements of Activities as performance obligations are satisfied under the terms of the contracts.

In addition, the Institute may indirectly have equity interests in startup companies formed to commercialize inventions created by its Investigators. Such equity interests are held in the host institution's name for the benefit of HHMI until the host institution disposes of that interest. As a result, recognition of value related to such equity interests is recorded only upon notification to HHMI by the host institution that its equity interest has been sold, and the Institute's share of the proceeds has been determined. No value for such equity interests is carried on the Consolidated Statements of Financial Position.

The Institute may in the future directly hold equity or other interests in some startup companies formed to commercialize inventions created by its group leaders or other researchers at the Janelia Research Campus. In this event, the equity or other interests would be managed by the Institute's Investment Department and appropriately recorded in the consolidated financial statements.

Investments

Investments are presented at fair value in accordance with GAAP. When available, investments are valued based on quoted market prices. In cases where market quotations are not available, management relies on appraisals, assumptions and other methods to estimate fair value. For certain alternative investments, management uses Net Asset Value ("NAV") as the practical expedient to determine fair value. The Institute's investment valuation policies are discussed in detail in Note 4.

Net realized and change in unrealized gains and losses are calculated using the average cost of investments and are recognized in *Net investment return in* the Consolidated Statements of Activities. Investment income, including interest, is accrued as earned. Dividend income is recorded on the ex-dividend date.

Derivatives, such as futures, options, swap contracts, and foreign currency forward contracts are recorded at fair value with the resulting gain or loss recognized in the *Net investment return* financial statement line item.

Land, Buildings, Laboratory Space, and Equipment

Costs of constructing and renovating laboratory space occupied by Investigators or other HHMI laboratory heads, and improvements in excess of the Institute's capitalization threshold, are currently capitalized and amortized over the lesser of 5 years or the remaining appointment term of the Investigator or other HHMI laboratory head for whom renovations are being made. Buildings, building improvements, and equipment having a useful life of more than one year and a unit cost that exceeds the Institute's capitalization threshold are capitalized. Interest paid on construction debt is capitalized as a component of the building cost. Repair and maintenance costs are expensed as incurred.

Depreciation is computed using the straight-line method over the estimated useful lives as follows:

Classification	Estimated Useful Life (years)
Equipment and furniture	5
Leasehold improvements	5-10
Land improvements	20
Buildings	35

Upon the sale or retirement of land, buildings, laboratory space, or equipment, the related cost and accumulated depreciation are removed from the Consolidated Statements of Financial Position and the resulting gains or losses are reflected in the Consolidated Statements of Activities.

Operating Leases
The Institute appoints and employs selected faculty members ("Investigators") at host institutions and employs other personnel to conduct or facilitate the conduct of research at the site. The Institute determines the amount of research and office space for use in its supported research, and under a collaboration agreement, makes direct payments to host institutions for the occupancy of space and certain host-provided services.

The Institute has determined that under GAAP, its occupancy arrangement with host institutions must be treated as operating leases. Consistent with this determination, at commencement of an Investigator's term, the Institute measures and recognizes a right-of-use ("ROU") asset, representing the Institute's right to use the underlying asset (research and office space), and a lease liability, representing the Institute's obligation to make occupancy payments under the terms of the collaboration agreement with the Investigator's host institution. For purposes of recognizing ROU assets and lease liabilities associated with the Institute's occupancy arrangements, the Institute elected the practical expedient to not recognize a ROU asset or lease liability for short-term occupancy arrangements, which are those with a term of twelve months or less.

The term of the collaboration agreement with the host institution is not defined as a fixed number of years; rather, at each host site the term extends for as long as the Institute continues to support an Investigator at that host site. In accordance with the lease accounting standard, the Institute determined that the lease term should correspond to the term of the Investigator, which is currently seven years plus a two-year phase-out period, if the Investigator's term is not renewed, with the phase-out occurring immediately subsequent to the expiring term. The Institute may renew Investigator appointments for additional terms with no limitation on the number of renewals. The Institute determined it is not reasonably certain it will renew the terms of any specific existing Investigators upon expiration of their current term, and therefore, renewal and termination options are not considered in determining a lease term.

The Institute elected as a practical expedient not to separate non-lease components (e.g., utilities, janitorial service and maintenance) from lease components and, applied this approach consistently to all host institutions. The Institute considers lease payments to include future cash payments from the Institute to the host institution directly associated with the occupancy of research and office space during the remaining terms of the Investigators, inclusive of anticipated consumer price index adjustments.

The rates implicit within the Institute's occupancy arrangement are generally not determinable, and therefore, the Institute's collateralized borrowing rate is used to determine the present value of occupancy (lease) payments. The collateralized borrowing rate is subsequently reassessed if there is a modification to the occupancy-related provisions of the collaboration agreement.

Grant Commitments
The Institute awards domestic and international grants for periods generally ranging from one to five years. The Institute in its discretion may defer an award, if requested by the awardee. Deferred awards continue to be unconditional commitments for which there are no additional contingencies, and are included in the grant commitment liability at August 31, 2020. For multi-year awards, grant

commitments are recorded as expenses in the Consolidated Statements of Activities in the year the grant commitment is made, and the present value of the grant commitment liability is reflected in the Consolidated Statements of Financial Position. The discount rate used to arrive at the present value of future payments is based on the rates for U.S. Treasury Notes with maturities in the years in which the payments will be made.

Insurance

The Institute generally self-insures for property and casualty risks. Third party insurance is purchased from time to time in response to specific needs.

Income Taxes

The Institute is a public charity and qualifies as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code and equivalent state provisions, except with regard to unrelated business income, which is taxable at corporate income tax rates. The Tax Cuts and Jobs Act (the "Act") enacted on December 22, 2017 includes a new excise tax on executive compensation, changes to the net operating loss rules, repeal of the alternative minimum tax (AMT), and the computation of UBTI separately for each unrelated trade or business. Further, the Act reduces the U.S. federal corporate tax rate and federal corporate unrelated business income tax rate from 35% to 21%. As a result of the changes to the Code under the Act, the Institute has estimated a provision for income taxes related to expected future unrelated business taxable income and net operating loss carryforwards expected to be utilized in future years (Note 14).

Income taxes are reported under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Under this method, the Institute determines deferred tax assets and liabilities based on the differences between the financial statement and tax bases of assets and liabilities by using enacted tax rates in effect for the year in which the differences are expected to reverse. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in income in the period that includes the enactment date.

Deferred tax assets are recognized to the extent that these assets are more likely than not to be realized. In making such a determination, the Institute considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations. The Institute records a valuation allowance against deferred tax assets to the extent that the Institute estimates that they are 50 percent or less likely to be realized. The Institute assesses the valuation allowance annually and any changes to the valuation allowance are recorded as a component of the provision for income taxes in the year recognized.

In accordance with the guidance on accounting for uncertainty in income taxes, management regularly evaluates its tax positions and does not believe the Institute has any uncertain tax positions that result in a material impact on the Institute's consolidated financial position or change in total net assets. The Institute is subject to routine audits by taxing jurisdictions. The Institute believes it is no longer subject to income tax examinations for fiscal years prior to August 31, 2016.

Recent Accounting Pronouncements

Standards adopted in the current year:

In January 2016, the FASB issued ASU 2016-01, *Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities*. ASU 2016-01 requires equity investments to be measured at fair value, with changes in fair value recognized in net income. Equity investments for which fair value is not readily determinable may be measured at cost, minus impairment, and plus or minus adjustments for observable price changes. ASU 2016-01 also requires financial liabilities that an entity has elected to measure at fair value, to be presented separately, in other comprehensive income, the portion of the change in fair value that results from a change in instrument-specific credit risk. Under the ASU, non-public business entities will no longer be required to disclose the fair value of financial instruments measured at amortized cost. ASU 2016-01 will be effective for entities (other than public business entities) for fiscal years beginning after December 15, 2018. Although the Institute adopted the new standard in fiscal year 2020, the adoption did not have a material impact to the Institute's consolidated financial statements and disclosures.

In February 2016, the FASB issued ASU 2016-02, *Leases (Topic 842)*. This new standard establishes a right-of-use ("ROU") model that requires a lessee to record a ROU asset and a lease liability on the balance sheet for all leases with terms longer than 12 months. Leases are classified as either finance or operating, with classification affecting the pattern of expense recognition in the Consolidated Statements of Activities. The new standard is effective for fiscal years beginning after December 15, 2019. A modified retrospective transition approach is required for lessees for capital and operating leases existing at, or entered into after, the beginning of the earliest comparative period presented in the financial statements, with certain practical expedients available. The Institute adopted the new standard with an effective date of September 1, 2019, which is the date of the initial application. The adoption of this standard resulted in the recognition of right-of-use assets under operating leases totaling $188.1 million and operating lease liabilities of $188.1 million as of September 1, 2019.

In November 2016, the FASB issued ASU 2016-18, *Statement of Cash Flows (Topic 320): Restricted Cash,* which requires that a statement of cash flows explain the change during the period in the total of cash, cash equivalents, and amounts generally described as restricted cash or restricted cash equivalents. Therefore, amounts generally described as restricted cash and restricted cash equivalents should be included with cash and cash equivalents when reconciling the beginning-of-period and end-of-period total amounts shown on the statement of cash flows. The Institute adopted ASU 2016-18 in fiscal year 2020 with retrospective application to fiscal year 2019. The end of year balance for *Cash, cash equivalents, and restricted cash* on the Consolidated Statements of Cash Flows for fiscal year 2019 was changed to include *Escrowed bond proceeds*, which the Institute identified as restricted cash under the new standard. The change resulted in an increase of $41.8 million to *Cash, cash equivalents, and restricted cash* on the Consolidated Statements of Cash Flows.

In March 2017, the FASB issued ASU 2017-07, *Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Pension Cost and Net Periodic Postretirement Benefit Cost.* The amendment requires an employer to disaggregate the service cost component from other components of net benefit cost. The service cost component will be presented in the same line or items as other compensation costs arising from services rendered by the pertinent employees during the period. The other components (interest cost, amortization of prior service cost, and amortization of net gain/loss) will be reported separately outside of operations and will not be eligible for capitalization. This ASU is effective for fiscal years beginning after December 15, 2018. The

Institute adopted ASU 2017-07 in fiscal year 2020 with retrospective application to fiscal year 2019. The Institute presented certain other components of net benefit cost separately from the service component and outside of a subtotal of operating expenses. The table below summarizes the impact to revenue and expenses.

(In thousands)

	Consolidated Statements of Activities	For the period ended August 31, 2019 (Recast)	For the period ended August 31, 2019	Difference
Net investment return	Revenue	$ 643,865	$ 640,700	$ 3,165
Program activities				
Medical research	Expenses	660,393	763,053	(102,660)
Science education and other scientific programs	Expenses	46,132	50,679	(4,547)
General and administrative	Expenses	107,656	121,396	(13,740)
Other changes				
Other components of net periodic pension costs	Other Changes	(124,112)	-	(124,112)

In June 2018, the FASB issued ASU 2018-08, *Not-for-Profit Entities (Topic 958): Clarifying the Scope and the Accounting Guidance for Contributions Received and Contributions Made*. The new guidance provides a robust framework for determining (1) whether transactions should be accounted for as contributions or exchange transactions, and (2) determining whether a contribution is conditional. The new standard is effective for contributions made for fiscal years beginning after December 15, 2018 and contributions received for fiscal years beginning after June 15, 2018. The Institute adopted the new guidance for contributions received and contributions made in fiscal years 2019 and 2020, respectively. The new guidance did not have a material impact to the Institute's consolidated financial statements and disclosures.

Standards effective in future years:
In March 2020, the FASB issued ASU 2020-04, Reference Rate Reform (Topic 848), *Facilitation of the Effects of Reference Rate Reform on Financial Reporting*, an update that provides optional expedients and exceptions for applying GAAP to contracts, hedging relationships, and other transactions affected by reference rate reform if certain criteria are met. The amendments in this update apply only to contracts, hedging relationships, and other transactions that reference LIBOR or another reference rate expected to be discontinued because of reference rate reform. This accounting standards update is intended to ease the process of migrating away from LIBOR to new reference rates. The standard was effective upon issuance and generally can be applied through December 31, 2022. The Institute is evaluating the impact of the new standard to its consolidated financial statements and disclosures.

3. LIQUIDITY AND AVAILABILITY OF RESOURCES

The Institute's financial assets available within one year of the Consolidated Statement of Financial Position date for general expenditures, construction costs, liabilities, and other obligations as they come due are as follows:

(In thousands)	August 31, 2020	August 31, 2019
Total assets	$ 23,840,457	$ 22,544,412
Less:		
Investments not available for redemption within one year	(10,372,333)	(8,214,436)
Right-of-use assets	(151,670)	-
Deferred income taxes	(3,527)	(12,895)
Prepaid expenses and other assets	(71,315)	(63,495)
Land, buildings, laboratory space, and equipment, net	(763,209)	(749,921)
Total financial assets at fiscal-year end	12,478,403	13,503,665
Other liquidity sources - lines of credit	400,000	-
Financial assets available to meet cash needs for general expenditures within one year	$ 12,878,403	$ 13,503,665

As part of the Institute's liquidity management, it has a policy to manage the endowment in a manner that will fund the programs and supporting functions in perpetuity and balance long-term growth with the need for stability of investment returns and liquidity. The Institute's investment approach for the endowment is governed by a risk-based asset framework that seeks to assure the sum of the parts is consistent with the Institute's long-term spending goals and tolerance for risk. The endowment's asset allocation framework consists of four Asset Groups: High Risk/Return Assets, Global Equity, Diversifying Assets, and Bonds, each with its own defined risk and return terms. The Institute's long-term investment goal for the endowment is to maximize investment returns without materially exceeding the risk inherent in its strategic benchmark, which consists of a portfolio invested 65% in the broad stock market and 35% in the bond market. As of August 31, 2020 and 2019, respectively, the Institute had approximately $12.9 billion and $13.5 billion of financial assets available within one year to meet cash needs for general expenditures, construction costs, liabilities, and obligations as they come due. No financial assets are subject to restrictions that make them unavailable for general expenditure within one year of the date of the Consolidated Statement of Financial Position.

4. INVESTMENTS

The Institute elected to apply the fair value option of ASC 825, "Financial Instruments," to its portfolio of investments. As such, Investments, as shown on the Consolidated Statements of Financial Position, are presented at fair value in accordance with GAAP. The investment categories, valuation methodology, fair value hierarchy, and related commitments for fiscal years August 31, 2020 and 2019 are discussed below.

Investment Categories and Valuation Policy
Investments are categorized by asset class and valued as described below:

Equity investments primarily consist of direct ownership of public and private companies in the form of common stock. Investments in listed securities on exchanges are typically valued based on last quoted market prices on the last trading date of the principal market on or before August 31. Investments in private companies are valued by management based on the best available information in the circumstance and may require significant management judgment. The majority of the Institute's equity investments are publicly traded.

Fixed income securities primarily consist of actively traded debt instruments including U.S. Treasury Notes/Bonds/Bills, and private placement debt. Fixed income securities, excluding U.S. Treasury Bills, are valued by independent pricing sources, broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. The U.S. Treasury Bills are recorded at amortized cost, which approximates fair value. External investment managers primarily value certain private placement debt that is directly linked with equity ownership in alternative investments. These values are adjusted, if applicable, by management as described under *Valuation Methodology*. The U.S. Treasury issues the majority of the Institute's fixed income investments.

Preferred securities primarily consist of direct ownership of public and private companies in the form of preferred stock. Investments in publicly traded companies are valued based on readily available market quotations obtained from independent pricing sources. Investments in private companies with an available OTC market are valued using quotes from broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Investments in private companies with no OTC market are valued based on the best available information in the circumstance and may require significant management judgment.

Convertible securities primarily consist of direct ownership of public and private companies in the form of preferred stock or bonds that contain a conversion covenant, usually into common stock. Investments in publicly traded companies are valued based on readily available market quotations obtained from independent pricing sources. Investments in private companies with an available OTC market are valued using quotes from broker dealers or pricing models that factor in, where applicable, recently executed transactions, interest rates, bond or credit default spreads and volatility. Investments in private companies with no OTC market are valued based on the best available information in the circumstance and may require significant management judgment.
Alternative investments represent interests in funds, limited partnerships, and other pooled vehicles. The Institute classifies these investments in the following sub-categories:

- *Private equity investments* include venture capital, buyout strategies, and energy-related investments usually structured as limited partnerships or other similar pass-through vehicles. In general, these investments are held to the term of the investment and have limited liquidity. Distributions from these investments are primarily received through liquidation of the underlying assets.
- *Hedged equity investments* include long/short equity strategies, which are managed with moderate net exposure and event-driven strategies with the objective of achieving long-term equity-like returns with lower volatility. In most cases, these funds are redeemable at periodic intervals.

- *Distressed and credit sensitive investments* include long credit, long/short credit, and distressed credit strategies. In general, these investments are held to the term of the investment and have limited liquidity. Distributions from these investments are primarily received through liquidation of the underlying assets.
- *Equity commingled investments* include equity funds that invest in primarily long public securities traded on major stock exchanges. In most cases, these funds are redeemable at periodic intervals.
- *Real asset investments* include private market investments secured by hard assets such as real estate, power plants, commodity reserves and other assets. These investments are usually structured as limited partnerships or other similar pass-through vehicles. In general, these investments are held to the term of the investment and have limited liquidity. Distributions from these investments are primarily received through liquidation of the underlying assets.
- *Market neutral investments* include long/short equity strategies which are managed with a close to zero net exposure and multi-strategy relative value investment approach with the objective to generate positive returns above the risk-free rate that have little or no correlation with public equities. In most cases, these funds are redeemable at periodic intervals.

The Institute has an active co-investment program. Investments held through this program are classified in one of the above alternative categories if they are structured as limited partnerships or other similar pass-through vehicles. If the Institute owns the co-investment directly, the investment is categorized as a private company investment in equity, fixed income, preferred securities or convertible securities, as applicable.

The fair value of alternative investments is primarily based on the NAV reported or calculated by the respective external investment managers and is adjusted, if applicable, as described under *Valuation Methodology*. Private company co-investments and funds that do not report NAV are valued by management based on the best available information in the circumstance and may require significant management judgment.

Derivatives are used by the Institute to manage its exposure to certain risks relating to ongoing business and investment operations. Derivatives include futures contracts, OTC foreign currency forward contracts, options, contracts for difference, participatory contracts, and various swap contracts. The fair value of derivative investments is determined based on the type of derivative. Listed futures and options, and foreign currency forward contracts are valued by independent pricing sources. Contracts for difference and participatory notes are equity market access products and are typically valued based on changes in price of the underlying equity, adjusted for any financing costs. Swaps and other OTC derivatives are valued by the calculation agent of the contract, which is usually the counterparty to the contract, or by independent pricing sources where available, based on the terms of the contract and other observable inputs.

Short positions are used by the Institute in anticipation of a decline in the market value of an investment. In a physical short sale, the Institute is required to pay the lender any dividends or interest, which accrues during the period of the loan. The Institute is then obligated to return the security borrowed by purchasing it at market price at the time of replacement. The price of the security at replacement may differ from the price at which the security was sold. The Institute will incur a loss if the price of the security increases between the date of the short sale and when the fund replaces the borrowed security. This loss may be unlimited. The Institute will realize a gain if the security declines in price between those dates. The amount of any gain will be decreased, and the amount of any loss increased, by the amount of any premium, dividends or interest the Institute may be required to pay in connection with a short sale.

Valuation Methodology
Valuation techniques applied to the Institute's investments can include a combination of both observable and unobservable inputs. The Institute's investments in equities, fixed income securities, preferred securities and convertible securities are valued based on quoted market prices in active markets on a trade-date basis or by independent pricing sources, whenever available. Where such inputs do not exist, fair value measurements are based on the best available information such as broker quotes, models or other valuation methodologies that require varying degrees of management judgment.

NAV is used as a practical expedient in determining fair value for investments which (a) do not have a readily determinable fair value and (b) are an investment company as defined under ASC 946, *Financial Services – Investment Companies*, or have attributes of an investment company.

The Institute's external investment managers, administrators and general partners in accordance with their policies as described in their respective financial statements and offering memoranda report the NAV. For certain investments, the most recent NAV reported is adjusted for cash flows and significant known valuation changes, if any, of its related portfolio through August 31, 2020 and 2019 respectively. Management reviews the valuation policies and financial reporting of managers and performs due diligence, as applicable, to obtain an understanding of the valuation processes used by the third party for suitability and appropriateness for use in the Institute's financial statements. Management believes the Institute's allocated share of the carrying amount of these alternative investments is a reasonable estimate of fair value. The majority of the Institute's alternative investments qualify for use of NAV as a practical expedient in accordance with ASC 820 – *Fair Values Measurements and Disclosures*.

For the remaining alternative investments, the Institute considers various factors to estimate fair value including the timing of the transaction, market factors, comparable transactions, company performance and company projections. The selection of an appropriate valuation technique may be affected by the availability and general reliability of relevant inputs. These fair value estimates are subject to the review and approval of the Institute's Valuation Committee.

The Institute's Valuation Committee is comprised of the Chief Investment Officer, the Managing Director - Head of Investment Operations, the Director, Investment Operations, and the Director, Investment Fund Services. The Institute's overall valuation methodology and its application is subject to review and oversight by the Valuation Committee, who meet quarterly to review and assess the valuation techniques applied and to consider new methodologies or recommend changes as appropriate. Once selected for an investment, valuation techniques are consistently applied. The Valuation Committee has sole authority to make overrides to the current valuation methodology or technique for a specific investment. A change in a valuation technique or its application will be made only if the change results in a measurement that management believes is more representative of fair value in the circumstances. The Institute did not change its valuation methodology for fiscal years ending August 31, 2020 and 2019. Although the Valuation Committee believes its valuation methods are appropriate and consistent, these methods may produce a fair value estimate that may not be indicative of the ultimate net realizable value, or reflective of future fair values and such differences could be material.

Fair Value Hierarchy

The fair value hierarchy, as required by ASC 820, prioritizes the use of market-based information over entity-specific information and establishes a three-level hierarchy for fair value measurement based on the transparency of information, such as the pricing source used in the valuation of an asset or liability as of the measurement date. It consists of observable and unobservable inputs at three levels. Observable inputs are based on market data obtained from sources independent of the reporting entity; unobservable inputs are based on the best information available in the circumstances.

- Level 1 inputs consist of quoted prices in active markets for identical assets or liabilities.

- Level 2 inputs are from sources other than quoted prices that are observable for an asset or liability, either directly or indirectly. Level 2 inputs include quoted prices for similar assets or liabilities in active markets, interest rates and yield curves observable at commonly quoted intervals, volatilities, prepayment speeds, loss severities, credit risks, default rates, and market corroborated inputs that are derived principally from or corroborated by observable market data by correlation or other means.

- Level 3 inputs are unobservable inputs for the asset or liability. They are used to measure fair value when observable inputs are not available, including situations in which there is little, if any, market activity for the asset or liability at the measurement date.

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

The following tables present the financial instruments carried at fair value as of August 31, 2020 and 2019 according to the valuation hierarchy defined above.

August 31, 2020
(In thousands)

	Quoted Market Prices (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)	Total Fair Value
Assets				
Cash equivalents	$ -	$ 956,562	$ -	$ 956,562
Repurchase agreements	-	603,892	-	603,892
Investments:				
Equity	2,281,817	-	73,878	2,355,695
Fixed income securities	-	1,518,747	16,059	1,534,806
Preferred securities	20,745	4,782	17,832	43,359
Convertible securities	-	1,245	-	1,245
Alternative investments	-	-	197,612	197,612
Derivatives	484	35,132	-	35,616
Total	2,303,046	3,120,360	305,381	5,728,787
Alternative investments measured under the NAV-practical expedient				16,597,189
Total	2,303,046	3,120,360	305,381	22,325,976
Deferred compensation plan assets	51,684	-	7,946	59,630
Total assets at fair value	$ 2,354,730	$ 3,120,360	$ 313,327	$ 22,385,606
Liabilities				
Investments and derivatives:				
Equity short positions	$ 119,667	$ -	$ -	$ 119,667
Preferred short positions	1,232	-	-	1,232
Fixed income short positions	-	-	-	-
Derivatives	9,122	248,458	-	257,580
Repurchase obligations	-	604,998	-	604,998
Total liabilities at fair value	$ 130,021	$ 853,456	$ -	$ 983,477

August 31, 2019
(In thousands)

	Quoted Market Prices (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)	Total Fair Value
Assets				
Cash equivalents	$ -	$ 202,490	$ -	$ 202,490
Investments:				
Equity	3,602,816	-	68,635	3,671,451
Fixed income securities	-	1,536,286	16,704	1,552,990
Preferred securities	19,123	7,769	18,984	45,876
Convertible securities	-	2,654	-	2,654
Alternative investments	-	-	176,622	176,622
Derivatives	-	13,818	-	13,818
Total	3,621,939	1,763,017	280,945	5,665,901
Alternative investments measured under the NAV-practical expedient				15,244,130
Total investments	3,621,939	1,763,017	280,945	20,910,031
Deferred compensation plan assets	46,800	-	6,967	53,767
Fixed income securities[1]	-	14,256	-	14,256
Total assets at fair value	$ 3,668,739	$ 1,777,273	$ 287,912	$ 20,978,054
Liabilities				
Investments and derivatives:				
Equity short positions	$ 499,189	$ 1,747	$ -	$ 500,936
Preferred short positions	6,996	-	-	6,996
Fixed income short positions	6,784	-	-	6,784
Derivatives	8	213,835	-	213,843
Total liabilities at fair value	$ 512,977	$ 215,582	$ -	$ 728,559

[1]Fixed income securities include investments in U.S. Treasury Bills with original maturities greater than 90 days reported in the *Escrowed bond proceeds* financial statement line item on the Consolidated Statements of Financial Position.

The following table presents the purchases and transfers for instruments classified within Level 3 of the fair value hierarchy as defined above for the years ended August 31, 2020 and 2019:

(In thousands)

Fair value measurements using significant unobservable inputs	For the year ended August 31, 2020			For the year ended August 31, 2019		
	Purchases	Transfers in	Transfers out	Purchases	Transfers in	Transfers out
Deferred compensation funds	$ 756	$ -	$ -	$ 794	$ -	$ -
Investments:						
Equity	3,737	-	-	24,251	-	-
Fixed income securities	-	-	-	2,386	-	-
Preferred securities	328	-	-	1,993	-	-
Alternative investments	950	-	-	34,650	-	(75,700)
Total investments	5,015	-	-	63,280	-	(75,700)
Totals	$ 5,771	$ -	$ -	$ 64,074	$ -	$ (75,700)

The table above excludes those investments valued using NAV as the practical expedient as outlined in ASU 2015-07, *Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities that Calculate NAV per Share (or its Equivalent)*.

Management continuously reviews and evaluates financial reporting investment levels and modifies them as necessary. For the fiscal year ended August 31, 2020, there were no transfers in or out of the Level 3 classification. For the fiscal year ended August 31, 2019, the transfers out of the Level 3 classification resulted from a change in valuation inputs received from the external investment manager, thus changing the classification of the investment to being reported using NAV.

<u>Level 3 Valuation Techniques and Unobservable Inputs</u>
The following table summarizes the unobservable inputs and assumptions used for items categorized in Level 3 of the fair value hierarchy as of August 31, 2020 and 2019, respectively. For each investment category and respective valuation technique, the range of the inputs is dependent on the nature and characteristics of the investment. The range of inputs listed below represent values as of the measurement date; however, these inputs may change over time which may have a material effect on the valuation of these types of investments in the future.

August 31, 2020
(In thousands)

Asset Class	Fair Value 2020	Valuation Techniques	Unobservable Inputs	Range of Inputs
Deferred compensation funds	$ 7,946	Income approach	Discount rate	3.00% - 4.25%
Equity	57,605	Market approach	EBITDA multiple	6.9x - 14.9x
	7,758	Income approach	Earning multiples discount	10% - 15%
	8,515		Discount rate	0% - 12%
Fixed income	13,630	Income approach	Interest rate	0% - 10%
	2,429	Market approach	EBITDA multiple	11.6x
Preferred securities	14,708	Market approach	EBITDA multiple	6.0x - 17.5x
	3,124	Income approach	Discount rate	10% - 12%
Alternatives	118,733	Market approach	EBITDA multiple	8.7x - 15.0x
	68,880		Independent appraisal	n/a
	9,999	Income approach	Discount rate	10% - 15%
Total	$ 313,327			

August 31, 2019
(In thousands)

Asset Class	Fair Value 2019	Valuation Techniques	Unobservable Inputs	Range of Inputs
Deferred compensation funds	$ 6,967	Income approach	Discount rate	3.25% - 4.50%
Equity	48,057	Market approach	EBITDA multiple	6.4x
	20,578	Income approach	Discount rate	0.0% - 12%
Fixed income	1,946	Market approach	EBITDA multiple	11.6x
	14,757	Cost plus accrued interest	Interest rate	0.0% - 10%
Preferred securities	13,345	Market approach	EBITDA multiple	5.0x - 14.3x
	4,595	Income approach	Discount rate	10% - 12%
	1,044	Market approach	Appraisal values	n/a
Alternatives	98,567	Market approach	EBITDA multiple	5.0x - 15.0x
	2,349		Third party valuation	n/a
	59,685	Market approach	Appraisal values	n/a
	12,924	Amortized cost	n/a	n/a
	3,098	Income approach	Discount rate	10% - 15%
Total	$ 287,912			

Alternative Investments at NAV

The following tables summarize investments for which the Institute uses NAV as the practical expedient and the respective unfunded commitments and redemption terms as of August 31, 2020 and 2019, respectively:

August 31, 2020
(In thousands)

	Fair Value as of August 31, 2020	Unfunded Commitment	Redemption Terms & Restrictions
Private equity	$ 4,293,790	$ 2,274,533	Not redeemable and held for the life of the investment.
	473,608	166,241	Investments with revolving lockup provisions are redeemable with advance notice of 90 days prior to the next lockup expiration date.
Hedged equity	2,161,293	-	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 60-90 days prior to the next lockup expiration date. Special investments (side pockets) are redeemable upon liquidation of the designated investment.
	146,101	60,000	Not redeemable and held for the life of the investment.
Distressed & credit sensitive	1,701,579	1,357,520	Not redeemable and held for the life of the investment.
	504,612	64,750	Lockup provisions may include a one-time term of up to 1 year. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-90 days.
Equity commingled	4,362,456	150,000	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 30-90 days prior to the next lockup expiration date.
Real assets	797,683	476,348	Not redeemable and held for the life of the investment.
	78,392	-	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30 days.
Market neutral	2,077,656	-	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 5-100 days.
Fixed Income Securities	19	2,972	Not redeemable and held for the life of the investment.
Total alternative investments	$ 16,597,189	$ 4,552,364	

August 31, 2019
(In thousands)

	Fair Value as of August 31, 2019	Unfunded Commitment	Redemption Terms & Restrictions
Private equity	$ 4,181,324	$ 1,917,624	Not redeemable and held for the life of the investment.
	$ 171,575	$ 516,603	
Hedged equity	1,881,990	70,000	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 60-90 days prior to the next lockup expiration date. Special investments, a.k.a side pockets, are redeemable upon liquidation of the designated investment.
	176,255	50,000	Not redeemable and held for the life of the investment.
Distressed & credit sensitive	1,021,202	863,859	Not redeemable and held for the life of the investment.
	875,171	835,099	Lockup provisions may include a one-time term of up to 1 year. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-90 days.
Equity commingled	3,196,770	240,000	Lockup provisions may include one-time or revolving terms ranging from 1-3 years. Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30-180 days. Investments with revolving lockup provisions are redeemable with advance notice of 30-90 days prior to the next lockup expiration date.
Real assets	856,627	481,660	Not redeemable and held for the life of the investment.
	194,312	140,394	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 30 days.
Market neutral	2,688,845	-	Investments with expired one-time lockup or no lockup provisions are redeemable on a periodic basis with advance notice of 5-100 days.
	59	4,400	Not redeemable and held for the life of the investment.
Total alternative investments	$ 15,244,130	$ 5,119,639	

As noted above, the Institute has made contractual commitments to fund various investments. The Institute has unfunded commitments totaling approximately $4.6 billion and $5.2 billion to fund investments in non-public entities as of August 31, 2020 and 2019, respectively. Not included in the tables above are unfunded commitments of approximately $0.1 billion and $0.1 billion as of August 31, 2020 and 2019, respectively, related to investments valued using a method other than NAV. The Institute expects these commitments to be called over the next 1 to 7 years.

Obligations under Security Lending Agreements

The Institute may lend its securities to approved borrowers to earn additional income. A lending agent in accordance with a securities lending agreement administers the Institute's securities lending activities. Security loans generally do not have stated maturity dates, and the fund may recall a security at any time. The Institute receives collateral in the form of cash, government debt securities, corporate debt securities, equity securities, and other types of securities as agreed to in the securities lending agreement. Collateral for loans of domestic securities and foreign securities that are denominated and payable in dollars are collateralized at a minimum of 102% and other foreign securities are collateralized at a minimum of 105% of the value of the securities on loan. Collateral is maintained over the life of the loan in an amount not less than the value of loaned securities; any additional collateral required due to changes in security values is delivered to the Institute the next business day. Cash collateral is invested in accordance with investment guidelines defined by the securities lending agreement. Additionally, the lending agent indemnifies the Institute against losses resulting from borrower default and against losses resulting from the investment of cash collateral in repurchase transactions resulting from counterparty default. Although risk is mitigated by the collateral and indemnification, the Institute could experience a delay in recovering its securities and a possible loss of income or value if the borrower fails to return the securities, collateral investments decline in value, and the lending agent fails to perform. Securities lending revenue consists of earnings on invested collateral and borrowing fees, net of any rebates to the borrower, compensation to the lending agent, and other administrative costs. In accordance with GAAP, cash collateral and investments made with cash collateral are reflected in the accompanying financial statements, but collateral received in the form of securities is not. The value of cash collateral was $44.4 million and $40.8 million as of August 31, 2020 and 2019, respectively. The market value of loaned securities was $262.9 million and $543.8 million as of August 31, 2020 and 2019, respectively, and are included in the Consolidated Statements of Financial Position in *Investments*. The market value of cash and non-cash collateral was $279.1 million and $562.6 million at August 31, 2020 and 2019, respectively. Income from securities lending activities totaled approximately $0.8 million and $0.9 million for August 31, 2020 and 2019, respectively, and is included in *Net investment return*.

5. DERIVATIVES

The Institute invests in derivative financial instruments to control market risks, manage its portfolio exposure, reduce investment implementation costs, and enhance returns. Derivatives are recorded at fair value with the resulting gain or loss recognized in the Consolidated Statements of Activities. The Institute seeks to transact with counterparties that are operating under master netting agreements for derivative trades. These agreements may allow the Institute to offset amounts owed by the counterparty with amounts payable to the same counterparty. These agreements may permit net settlement of multiple transactions with that counterparty. As a result of investing in derivative financial instruments, the Institute is exposed to potential credit-related losses in the event of nonperformance by counterparties. The Institute limits its exposure by evaluating the creditworthiness of potential counterparties before investing.

Swap, OTC option, forward contracts and other OTC derivative contracts expose the Institute to credit risk arising from the potential inability of counterparties to perform under the terms of the contracts. The notional amounts of these contracts do not represent the Institute's risk of loss due to counterparty nonperformance. The Institute's exposure to credit risk associated with counterparty nonperformance for these contracts is limited to the fair value of such contracts and any related collateral placed with the counterparty, after enforcing any master netting agreements with counterparties that allow the Institute to offset amounts owed by the counterparty with amounts payable to the same counterparty. As of August 31, 2020, the aggregate fair value of all derivative contracts by counterparty after applying netting arrangements and before including the effects of collateral that are in a net asset position is insignificant, thus the Institute's credit exposure to each counterparty is considered immaterial.

Derivatives contracts are subject to various risks similar to non-derivative instruments. For non-exchange traded derivatives under standard derivatives agreements, the Institute may be required to post collateral for initial margin and also variation margin in the event of a net liability position exceeding certain amounts with the counterparty. Additionally, the counterparty may, upon providing notice and allowing for any applicable cure period, terminate derivatives contracts if the Institute fails to maintain sufficient asset coverage for its contracts or its net assets decline by stated percentages. The Institute posted collateral as of August 31, 2020 and 2019 of approximately $118.6 million and $86.4 million, respectively, in the normal course of business and these amounts are included in *Due from Brokers* on the Consolidated Statements of Financial Position. The Institute received no collateral related to derivatives contracts as of August 31, 2020 and 2019.

The following tables present the derivatives held as of August 31, 2020 and 2019, respectively, by their primary underlying risk exposure. These derivatives are not designated as hedging instruments under ASC 815, *Derivatives and Hedging*.

(In thousands)

	As of August 31, 2020		For the year ended August 31, 2020	
Primary Risk Exposure	Gross derivative assets	Gross derivative liabilities	Net realized gains/(losses)	Net unrealized gains/(losses)
Equity Instruments				
Equity futures	$ -	$ 9,122	$ 18,137	$ (9,122)
Equity swaps	1,527	344	(7,303)	1,474
Contracts for difference	669	1,264	(15,418)	(1,381)
Total equity instruments	2,196	10,730	(4,584)	(9,029)
Fixed income instruments				
Fixed income futures	484	-	1,996	484
Interest rate swaps	-	237,565	-	(41,447)
Total fixed income instruments	484	237,565	1,996	(40,963)
Currency instruments				
Currency exchange contracts	32,936	9,285	(18,665)	28,052
Total currency instruments	32,936	9,285	(18,665)	28,052
Total	$ 35,616	$ 257,580	$ (21,253)	$ (21,940)

The above derivative assets and liabilities are included in *Investments and derivative assets* and *Investments and derivative liabilities*, respectively, on the Consolidated Statements of Financial Position. Net realized gains/(losses) and Net unrealized gains/(losses) are included in *Net investment return* on the Consolidated Statements of Activities.

(In thousands)

	As of August 31, 2019		For the year ended August 31, 2019	
Primary Risk Exposure	Gross derivative assets	Gross derivative liabilities	Net realized gains/(losses)	Net unrealized gains/(losses)
Equity Instruments				
Equity swaps	$ -	$ 293	$ 5,118	$ 140
Contracts for difference	8,401	7,615	12,824	(2,326)
Total equity instruments	8,401	7,908	17,942	(2,186)
Fixed income instruments				
Fixed income futures	-	-	207	36
Interest rate swaps	154	196,272	-	(105,525)
Total fixed income instruments	154	196,272	207	(105,489)
Currency instruments				
Currency exchange contracts	5,263	9,663	(15,955)	(2,780)
Total currency instruments	5,263	9,663	(15,955)	(2,780)
Total	$ 13,818	$ 213,843	$ 2,194	$ (110,455)

The above derivative assets and liabilities are included in *Investments and derivative assets* and *Investments and derivative liabilities*, respectively, on the Consolidated Statements of Financial Position. Net realized gains/(losses) and Net unrealized gains/(losses) are included in *Net investment return* on the Consolidated Statements of Activities.

The following tables reflect the Institute's net exposure to various counterparties subject to master netting agreements, where applicable, as of August 31, 2020 and 2019, respectively.

As of August 31, 2020
(In thousands)

	Gross Assets	Gross Liabilities	Net	Collateral Posted (Received)	Net Exposure
Counterparty A	$ -	$ 43,273	$ (43,273)	$ 3,058	$ (40,215)
Counterparty B	2	4	(2)	-	(2)
Counterparty C	-	-	-	-	-
Counterparty D	-	-	-	-	-
Counterparty E	433	794	(361)	14,130	13,769
Counterparty F	25,252	99,283	(74,031)	6,600	(67,431)
Counterparty G	4,110	3,233	877	-	877
Counterparty H	-	67,826	(67,826)	67,558	(268)
Counterparty I	1,527	344	1,183	3,470	4,653
Counterparty J	-	31,357	(31,357)	-	(31,357)
Counterparty K	3,808	2,345	1,463	-	1,463
Counterparty L	484	9,121	(8,637)	23,815	15,178
Total	$ 35,616	$ 257,580	$ (221,964)	$ 118,631	$ (103,333)

The above derivative assets and liabilities are included in *Investments and derivative assets* and *Investments and derivative liabilities*, respectively, on the Consolidated Statements of Financial Position. Securities and cash collateral are included in *Due from Brokers* on the Consolidated Statements of Financial Position.

As of August 31, 2019
(In thousands)

	Gross Assets	Gross Liabilities	Net	Collateral Posted (Received)	Net Exposure
Counterparty A	$ 1,660	$ 38,151	$ (36,491)	$ 26,961	$ (9,530)
Counterparty B	1	19	(18)	-	(18)
Counterparty C	1,802	761	1,041	4,465	5,506
Counterparty D	695	1,979	(1,284)	-	(1,284)
Counterparty E	2,548	2,878	(330)	33,590	33,260
Counterparty F	5,881	82,886	(77,005)	14,500	(62,505)
Counterparty G	61	5,837	(5,776)	-	(5,776)
Counterparty H	-	57,840	(57,840)	-	(57,840)
Counterparty I	1	293	(292)	6,840	6,548
Counterparty J	-	21,751	(21,751)	-	(21,751)
Counterparty K	1,169	1,448	(279)	-	(279)
Total	$ 13,818	$ 213,843	$ (200,025)	$ 86,356	$ (113,669)

The above derivative assets and liabilities are included in *Investments and derivative assets* and *Investments and derivative liabilities*, respectively, on the Consolidated Statements of Financial Position. Securities and cash collateral are included in *Due from Brokers* on the Consolidated Statements of Financial Position.

Derivative notional amounts and values as of August 31, 2020 and 2019 are indicative of the Institute's exposure to derivatives for the years then ended.

Foreign Exchange Forward Contracts
Foreign exchange forward contracts are over-the-counter contractual agreements primarily used to sell or buy certain amounts of foreign currencies as a means to hedge foreign currency risk or for speculating for investment returns in the foreign currency market. The notional value of open forward contract purchases and sales totaled approximately $677.9 million and $569.5 million, respectively, at August 31, 2020, and $781.6 million and $504.2 million, respectively, at August 31, 2019.

Futures
Futures contracts are commitments to purchase or sell a financial instrument at a stated time and price in the future. They are generally used to increase or decrease exposure to a specific market or investment product. These contracts are settled daily to reflect the changes in their market values.

As of August 31, 2020 and 2019, the Institute had entered into various futures contracts with notional exposures as follows:

(In thousands)

	2020		2019	
	Buy	Sell	Buy	Sell
Fixed income	$ 232,215	$ (46,785)	$ -	$ -
Equity	-	(262,469)		
Total	$ 232,215	$ (309,254)	$ -	$ -

Contracts for Difference
Contracts for difference are agreements between a buyer and a seller to exchange the difference between the opening value of a share, currency, commodity, index or other tradable financial instrument and its closing value at the end of the contract. Contracts for difference are used by the Institute for gaining financial exposure to an underlying security or index without the need to own the underlying shares. As of August 31, 2020 and 2019, the Institute had entered into various contracts for difference with notional exposures at fair values as follows:

(In thousands)

	2020		2019	
	Buy	Sell	Buy	Sell
Equity indexes	$ 17,760	$ (98,174)	$ 293,245	$ (228,846)

Equity Swaps
Equity swaps are exchanges of cash flows in which at least one of the sides is an equity instrument, index, or basket of equities. An equity instrument is a measure of the performance of an individual stock or a basket of stocks. The notional amount of the equity swaps was $87.8 million and $27.3 million as of August 31, 2020 and 2019, respectively.

Debt-related Interest Rate Swaps
An interest rate swap is a derivative in which one party exchanges a stream of interest payments with another party's stream of cash flows. The Institute uses interest rate swap agreements to

manage fixed or floating assets and liabilities. Under the terms of the current agreements, the Institute pays a fixed interest rate, determined at inception, and receives a variable rate on the underlying notional principal amount. Refer to Note 9 for information related to interest rates and interest expense on the bonds payable, note payable, and interest rate swaps.

The following tables present the debt-related interest rate swaps including the notional amounts, fair values as of August 31, 2020 and 2019, respectively, and unrealized gains and losses for the years then ended.

August 31, 2020
(In thousands)

		As of August 31, 2020		For the year ended August 31, 2020	
Debt-related interest-rate swaps:	Termination Date	Notional Amount	Gross Derivative (Assets)/Liabilities[1]	Unrealized Gains (Losses)[2]	Fixed Rate[3]
Janelia Research Campus Apartment B	June 1, 2043	$ 33,130	$ 9,859	$ (2,445)	2.10%
Janelia Research Campus Apartment A	October 1, 2039	23,000	8,586	(1,595)	2.75%
Headquarters and conference center	November 1, 2036	76,500	33,547	(5,079)	3.48%
Headquarters and conference center expansion	March 1, 2038	83,500	36,540	(5,472)	3.30%
Janelia Research Campus	February 15, 2038	75,000	31,376	(4,879)	3.19%
	March 1, 2033	150,000	21,498	(7,160)	1.68%
	March 1, 2033	125,000	42,507	(5,582)	3.38%
	March 1, 2033	100,000	34,279	(4,906)	3.36%
	October 1, 2039	50,000	18,665	(3,467)	2.75%
Janelia Commercial Property	May 21, 2022	40,376	708	(862)	1.14%
Total			$ 237,565	$ (41,447)	

[1]Gross derivative liabilities are included in *Investments and derivative liabilities* on the Consolidated Statements of Financial Position.
[2]Unrealized gains on derivatives are included in *Net investment return* on the Consolidated Statements of Activities.
[3]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

August 31, 2019
(In thousands)

		As of August 31, 2019		For the year ended August 31, 2019	
Debt-related interest-rate swaps:	Termination Date	Notional Amount	Gross Derivative (Assets)/Liabilities[1]	Unrealized Gains (Losses)[2]	Fixed Rate[3]
Janelia Research Campus Apartment B	June 1, 2043	$ 33,130	$ 7,414	$ (6,198)	2.10%
Janelia Research Campus Apartment A	October 1, 2039	23,000	6,992	(3,947)	2.75%
Headquarters and conference center	November 1, 2036	76,500	28,468	(12,091)	3.48%
Headquarters and conference center expansion	March 1, 2038	83,500	31,068	(13,885)	3.30%
Janelia Research Campus	February 15, 2038	75,000	26,497	(12,362)	3.19%
	March 1, 2033	150,000	14,337	(18,089)	1.68%
	March 1, 2033	125,000	36,925	(15,719)	3.38%
	March 1, 2033	100,000	29,373	(12,567)	3.36%
	October 1, 2039	50,000	15,198	(8,579)	2.75%
Janelia Commercial Property	May 21, 2022	40,376	(154)	(2,088)	1.14%
Total			$ 196,118	$ (105,525)	

[1]Gross derivative liabilities are included in *Investments and derivative liabilities* on the Consolidated Statements of Financial Position. Gross derivative assets are included in *Investments and derivative assets* on the Consolidated Statement of Financial Position.
[2]Unrealized losses on derivatives are included in *Net investment return* on the Consolidated Statements of Activities.
[3]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

<u>Obligations under Master Repurchase Agreements</u>

The Institute has entered into repurchase obligations as part of its overall investment strategy to manage its operational needs, lend fixed income securities and/or provide for leverage in fixed income trading. These repurchase agreements and related collateral, which consists of U.S. Treasury notes and bonds with maturity dates that range up to twenty-four years, are reflected in the

Consolidated Statements of Financial Position as Repurchase obligations and Securities pledged as collateral, respectively. The Institute had the obligation to repurchase $605.0 million of marketable securities for which the Institute had provided collateral of $603.9 million to its counterparties as of August 31, 2020.

6. INVESTMENT RECEIVABLES AND PAYABLES

Investment Receivables and Payables

The following table presents the Institute's investment receivables and payables as of August 31, 2020 and 2019, respectively:

(In thousands)

	2020		2019	
	Receivables	Payables	Receivables	Payables
Securities pending settlement	$ 32,238	$ 37,783	$ 73,436	$ 40,639
Interest and dividend	8,797	-	12,630	-
Management fees	-	3,401	-	17,851
Other	-	412	-	854
Total	$ 41,035	$ 41,596	$ 86,066	$ 59,344

7. LAND, BUILDINGS, LABORATORY SPACE, AND EQUIPMENT

The following table presents the cost and accumulated depreciation and amortization of the Institute's investment in land, buildings, laboratory space, and equipment as of August 31, 2020 and 2019, respectively:

(In thousands)

	2020	2019
Land	$ 92,139	$ 92,130
Buildings	766,823	761,899
Laboratory space and leasehold improvements	350,601	353,857
Equipment, furniture and fixtures	606,649	588,392
	1,816,212	1,796,278
Less: Accumulated depreciation and amortization	(1,174,642)	(1,125,849)
	641,570	670,429
Construction in progress	121,639	79,492
Total	$ 763,209	$ 749,921

Depreciation expense was approximately $86.5 million and $77.9 million for the fiscal years ended August 31, 2020 and 2019, respectively.

8. LEASES

In accordance with GAAP, the Institute treats its occupancy arrangements for research and office space for its Investigators at host institutions as operating leases. These leases have remaining terms of less than one year to seven years. The period which is subject to an option to extend or terminate occupancy arrangement is not included in the lease term as it is not reasonably certain the Institute will renew the terms or terminate any specific existing Investigators upon expiration of their term.

Operating leases of the Institute as of August 31, 2020 are as follows:

(In thousands)		August 31, 2020
ROU asset balance	$	151,670
Short-term liability balance	$	36,414
Long-term liability balance		115,193
Total liability balance	$	151,607
Operating lease cost included in *Medical Research* on the Consolidated Statements of Activities	$	49,477
Cash paid for amounts included in the measurement of operating lease liabilities:		
Operating cash flows used in operating leases	$	49,540
Right-of-use assets obtained in exchange for new operating lease liabilities	$	13,293

(In thousands)
Maturities of operating lease liabilities as of August 31, 2020

Fiscal Year		Payments
2021	$	47,323
2022		45,005
2023		35,571
2024		28,996
2025		23,028
Thereafter		9,768
Total undiscounted lease liability		189,691
Imputed Interest		(38,084)
Total discounted lease liability	$	151,607

The impact of lease costs related to finance leases and short-term leases was not material for the fiscal year ended August 31, 2020.

Weighted-average remaining lease term	4.87
Weighted-average discount rate	1.62

Laboratory and other space charges, excluding amortization of leasehold improvements, totaled $51.0 million for the year ended August 31, 2019.

The following table presents the estimated minimum annual occupancy fees and other payments due under these agreements as of August 31, 2019:

(In thousands) Fiscal Year	Occupancy Fees
2020	$ 49,897
2021	49,897
2022	49,897
2023	49,897
2024	49,897
Total	$ 249,485

9. BOND AND NOTE PAYABLES

Tax-exempt bonds payable

On June 6, 2019, the Institute issued $51.8 million of tax-exempt capital appreciation bonds through the Economic Development Authority of Loudoun County, Virginia ("EDA") to finance the construction of a 101-unit apartment building at the Janelia Research Campus, which will be used by scientists and others engaged in research and administration at the Campus. The capital appreciation bonds represent bonds issued at a deep discount, pay no interest, but accrete or compound in value from the date of issuance to the date of maturity. The capital appreciation bonds are presented at their maturity value less the unaccreted appreciation. Unaccreted appreciation represents the difference between the maturity value of the debt and the face value and is accreted as interest expense over the life of the bonds. The maturity value of $141.8 million less the unaccreted appreciation of $87.8 million was $54.0 million as of August 31, 2020. The bonds carry a fixed rate of 3.38%, a yield to maturity of 3.38%, and a maturity date of July 1, 2049.

On May 15, 2013, the Institute issued $33.1 million of tax-exempt bonds through the Industrial Development Authority of Loudoun County, Virginia ("IDA") to finance the construction of an 86-unit apartment building at the Janelia Research Campus, to be used by scientists and others engaged in research and administration at the Campus. The bonds carry a variable interest rate determined on a weekly basis and mature on June 1, 2043.

On October 2, 2009, the Institute issued $23.0 million of tax-exempt bonds through the IDA to finance the construction of a 60-unit apartment building at the Janelia Research Campus, to be used by scientists and others engaged in research and administration at the Campus. The bonds carry a variable interest rate determined on a weekly basis and mature on October 1, 2039.

On May 15, 2008, the Institute issued $76.5 million of bonds through the Maryland Economic Development Corporation ("MEDCO") to refund $76.5 million of outstanding bonds issued on November 8, 1990, to finance the construction of the Institute's headquarters and conference center complex. The bonds carry a variable interest rate determined on a weekly basis, and mature on May 15, 2043.

On February 21, 2008, the Institute issued $83.5 million in tax-exempt bonds through MEDCO to finance the expansion of the Institute's existing headquarters and conference facilities. The bonds carry a variable interest rate determined on a weekly basis and mature on February 15, 2043.

On February 27, 2003, the Institute issued $500.0 million in tax-exempt bonds through the IDA to finance construction of the Janelia Research Campus. The bonds carry a variable interest rate determined on a weekly basis and mature on February 15, 2038.

Prior to the maturity of each of these tax-exempt bond issues, the Institute is obligated upon seven-day notice from a holder to redeem any or all bonds unless the remarketing agent is able to place the bonds with another party or hold them in their own portfolio. To date, no remarketing agents have failed to fulfill their obligations under their respective remarketing agreements. The Institute maintains sufficient cash and marketable securities to pay any bondholder redemption of part or all of the $770.1 million outstanding as of August 31, 2020.

Taxable bond payable

On July 22, 2013, the Institute issued $1.2 billion of taxable fixed rate bonds to establish a program spending reserve. On December 20, 2018, the Institute redeemed its $1.2 billion 3.5% taxable bond due to mature on September 1, 2023 in full at a make-whole price of 102.9%. A loss on the early extinguishment of debt of $38.3 million was recognized during the year ended August 31, 2019 related to the redemption make-whole penalty of $34.6 million and the write-off of unamortized debt issuance costs and original issue discount of $3.7 million. Accrued interest at August 31, 2020 and 2019 was $0.0 million and $0.0 million, respectively.

Note payable

In June 2003, the Institute entered into a renewable promissory note to finance the commercially-used land and buildings at the Janelia Research Campus that could not be financed with tax-exempt debt. In May 2020, the Institute replaced the existing promissory note with a new loan agreement with a different financing institution. The Institute did not recognize a gain or loss on the replacement of the note. The principal balance of the loan remained at $40.4 million, carries monthly interest payments based on LIBOR plus 100 basis points, and matures May 21, 2021.

Interest Rate Swaps

All variable rate debt has been synthetically fixed using variable-to-fixed interest rate swaps. Refer to Note 5 for information related to the debt-related interest rate swaps.

Bond and note payables for the Institute as of August 31, 2020 are as follows:

August 31, 2020 (In thousands)	As of August 31, 2020		For the year ended August 31, 2020	
	Calendar Year of Maturity	Outstanding Principal	Average Interest Rate[2]	Interest Expense[3]
Tax-exempt bond payables:				
Janelia Research Campus Apartment C[1]	2049	$ 53,966	3.38%	$ 190
Janelia Research Campus Apartment B	2043	33,130	0.87%	290
Janelia Research Campus Apartment A	2039	23,000	0.97%	222
Headquarters and conference center	2043	76,500	0.97%	738
Headquarters and conference center expansion	2043	83,500	0.98%	814
Janelia Research Campus	2038	500,000	0.96%	4,805
Total bonds payable		770,096		7,059
Amortization of bond discount/issuance costs				38
Unamortized bond discount/issuance costs		(1,024)		
Net bonds payable		769,072		7,097
Note payable:				
Janelia commercial property	2021	40,376	2.57%	672
Total note payable		40,376		672
Total		$ 809,448		$ 7,769

[1]The Institute issued $51.8 million of capital appreciation bonds in June 2019. The outstanding principal balance as of August 31, 2020 was $54.0 million due to the accretion in value from the date of issuance to August 31, 2020.

[2]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

[3]Interest expense excludes net interest expense from the related interest rate swap.

Bond and note payables for the Institute as of August 31, 2019 are as follows:

August 31, 2019 (In thousands)	As of August 31, 2019		For the year ended August 31, 2019	
	Calendar Year of Maturity	Outstanding Principal	Average Interest Rate[3]	Interest Expense[4]
Tax-exempt bond payables:				
Janelia Research Campus Apartment C[1]	2049	$ 52,187	3.38%	$ 414
Janelia Research Campus Apartment B	2043	33,130	1.54%	508
Janelia Research Campus Apartment A	2039	23,000	1.59%	364
Headquarters and conference center	2043	76,500	1.59%	1,212
Headquarters and conference center expansion	2043	83,500	1.58%	1,320
Janelia Research Campus	2038	500,000	1.58%	7,888
Taxable bond payable:				
Program Spending Reserve[2]		-	3.50%	12,717
Total bonds payable		768,317		24,423
Amortization of bond discount/issuance costs				210
Unamortized bond discount/issuance costs		(1,062)		
Net bonds payable		767,255		24,633
Note payable:				
Janelia commercial property	2020	40,376	2.62%	1,096
Total note payable		40,376		1,096
Total		$ 807,631		$ 25,729

[1]The Institute issued $51.8 million of capital appreciation bonds in June 2019. The outstanding principal balance was $52.2 million due to the accretion in value from the date of issuance to August 31, 2019.

[2]The Institute redeemed the Program Spending Reserve bond in December 2018. The outstanding principal balance as of August 31, 2019 was $0.

[3]The variable interest rate is reset on a weekly basis except for the note payable which is reset monthly.

[4]Interest expense excludes net interest expense from the related interest rate swap.

The following table presents interest expense in total for the years ended August 31, 2020 and 2019.

(In thousands)

Interest expense	For the year ended August 31, 2020	For the year ended August 31, 2019
Bonds and note	$ 7,769	$ 25,729
Net interest rate swaps	15,214	8,656
Financing leases	318	541
Other	-	2
Total	$ 23,301	$ 34,928

The following table presents the future annual principal payments required for the bond and note payables as of August 31, 2020:

(In thousands)

Fiscal Year	Principal payments	
2021	$	40,376
2022		-
2023		-
2024		-
2025		-
Thereafter		770,096
Total	$	810,472

The total interest paid in cash for the bonds and note payable, interest rate swaps, and financing leases was approximately $23.3 million and $55.5 million for the years ended August 31, 2020 and 2019, respectively.

10. FUNCTIONAL EXPENSES

The financial statements report certain categories of expenses that are attributable to more than one program or supporting function and require allocation on a reasonable basis that is consistently applied. These expenses are allocated to the programs (Medical research and Science education and other scientific programs) or supporting activities (General and administrative) of the Institute and include employee benefits, post-retirement/employment, and certain shared services. The basis for allocation of these expenses are compensation and estimates of time and effort. The majority of the Institute's expenses, including depreciation and interest, directly relate to the program or supporting function to which they are charged, and therefore, not allocated. General and administrative expenses include those expenses that are not directly identifiable with any other specific function but provide for the overall support and direction of the Institute.

Expense	**Allocation basis**
Employee Benefits	Salaries and wages
Post-retirement/employment	Salaries and wages
Certain Shared Services	Pre-defined rate per attendee or other cost driver

For the year ended August 31, 2020, functional expenses are as follows:

August 31, 2020 (In thousands)	Program Services			Supporting Activities	
	Medical Research	Science Education and Other Scientific Programs	Programs Subtotal	General and Administrative	August 31, 2020 Total Expenses
Salaries and wages	$ 247,355	$ 12,491	$ 259,846	$ 34,442	$ 294,288
Benefits	56,870	4,818	61,688	8,360	70,048
Post-retirement/employment benefits	(142,184)	(7,119)	(149,303)	(19,243)	(168,546)
Grants	18,834	33,747	52,581	7	52,588
Supplies	67,593	609	68,202	467	68,669
Laboratory supplies	36,089	-	36,089	-	36,089
Professional services	28,632	5,651	34,283	13,050	47,333
Rent and occupancy	49,793	-	49,793	17	49,810
Property, equipment and maintenance	29,767	192	29,959	8,731	38,690
Facility maintenance and services	12,172	2	12,174	5,702	17,876
Utilities	4,192	-	4,192	1,034	5,226
Telecommunications	447	7	454	1,325	1,779
Travel and training	4,086	1,454	5,540	2,258	7,798
Television and film	-	5,648	5,648	-	5,648
Other	3,777	1,582	5,359	1,652	7,011
Depreciation	76,333	229	76,562	9,890	86,452
Interest	17,007	-	17,007	6,294	23,301
	510,763	59,311	570,074	73,986	644,060
Deferred tax benefit, net	-	-	-	9,367	9,367
Total functional expenses	$ 510,763	$ 59,311	$ 570,074	$ 83,353	$ 653,427
Loss on extinguishment of debt	-	-	-	-	-
Other components of net periodic bene	142,585	7,139	149,724	19,297	169,021
Total operating expenses	$ 653,348	$ 66,450	$ 719,798	$ 102,650	$ 822,448

For the year ended August 31, 2019, functional expenses are as follows:

August 31, 2019 (In thousands)	Program Services			Supporting Activities	
	Medical Research	Science Education and Other Scientific Programs	Programs Subtotal	General and Administrative	August 31, 2019 Total Expenses
Salaries and wages	$ 246,311	$ 11,126	$ 257,437	$ 33,339	$ 290,776
Benefits	58,897	4,099	62,996	8,427	71,423
Post-retirement/employment benefits	96,090	4,257	100,347	12,860	113,207
Grants	15,936	9,713	25,649	-	25,649
Supplies	79,239	980	80,219	1,085	81,304
Laboratory supplies	38,258	-	38,258	-	38,258
Professional services	33,898	6,951	40,849	11,271	52,120
Rent and occupancy	50,948	-	50,948	16	50,964
Property, equipment and maintenance	29,534	287	29,821	8,822	38,643
Facility maintenance and services	12,417	1	12,418	11,424	23,842
Utilities	4,415	-	4,415	1,246	5,661
Telecommunications	611	1	612	1,601	2,213
Travel and training	7,339	2,116	9,455	1,327	10,782
Television and film	-	5,255	5,255	-	5,255
Other	4,227	5,707	9,934	2,235	12,169
Depreciation	69,270	186	69,456	8,478	77,934
Interest	15,663	-	15,663	19,265	34,928
	763,053	50,679	813,732	121,396	935,128
Deferred tax benefit, net	-	-	-	(12,895)	(12,895)
Total functional expenses	$ 763,053	$ 50,679	$ 813,732	$ 108,501	$ 922,233
Loss on extinguishment of debt	-	-	-	38,277	38,277
Other components of net periodic benefit cost	(102,660)	(4,547)	(107,207)	(13,740)	(120,947)
Total expenses	$ 660,393	$ 46,132	$ 706,525	$ 133,038	$ 839,563

11. COMMITMENTS AND CONTINGENCIES

Grant Commitments

The following table presents the timing of the Institute's grant payments and the associated discount as of August 31, 2020:

(In thousands) Fiscal Year	Grant Payments
2021	$ 38,918
2022	30,664
2023	12,441
2024	1,655
2025	400
Discount	(1,715)
Net Liability	$ 82,363

Contractual Commitments

Contractual commitments pertaining to the construction of an apartment building at the Janelia Research Campus was approximately $27.0 million as of August 31, 2020. Proceeds from the issuance of bonds and other revenues are expected to provide the necessary funding for these commitments.

Lines of Credit

In the spring of 2020, the Institute executed a total of $400 million of new lines of credit, available to pay for operating expenses and other financial needs of the Institute. The lines of credit are all 364-day facilities issued by four different lenders. All of these lines of credit remain undrawn as of August 31, 2020.

12. EMPLOYEE BENEFITS

Defined Contribution Retirement Plan

The Institute has a defined contribution plan under section 403(b) of the Internal Revenue Code. The Institute's plan contributions on behalf of its employees were $23.0 million and $23.4 million for the years ended August 31, 2020 and 2019, respectively.

Deferred Compensation Plan

The Institute has an unfunded deferred compensation plan in accordance with Section 457(b) of the Internal Revenue Code. The fair value of the assets and related liability to employees as of August 31, 2020 and 2019 was approximately $60.0 million and $53.8 million, respectively, and is reflected in the Consolidated Statements of Financial Position within *Other assets* and *Accounts payable and accrued liabilities*.

13. POSTRETIREMENT AND POSTEMPLOYMENT BENEFITS

The Institute maintains defined postretirement and postemployment benefit plans that provide eligible retirees with medical, prescription drug, vision, dental, life insurance, and disability programs. The total net obligation for these benefits reflected in the Consolidated Statements of Financial Position was $340.0 million and $501.1 million at August 31, 2020 and 2019, respectively.

Effective January 1, 2017, there were changes made to the postretirement benefit plan terms related to eligibility and retiree contribution requirements impacting both current and future retirees. The change in plan terms triggered a negative plan amendment and re-measurement as of September 30, 2016. The assumptions and methods used at the September 30, 2016, re-measurement date are the same as those used at August 31, 2017, except for the discount rate being updated to 3.80% for the Retiree Welfare Benefit Plan. The estimated prior service credit for the postretirement plan that will be amortized into expense over 6.5 years was approximately $102 million. The amortization period represents the remaining years of service to the full eligibility date and was approximately $15.6 million and $15.6 million for the years ended August 31, 2020 and 2019, respectively.

The following table summarizes the postretirement plan's unfunded status and the amount of the accumulated postretirement benefit plan costs for the years ended August 31, 2020 and 2019:

(In thousands)		
Accrued Benefit Liability:	2020	2019
Accumulated postretirement benefit obligation, beginning of year	$ 499,650	$ 367,655
Service cost	21,246	13,588
Interest cost	15,367	15,297
Employee contributions	1,670	1,639
Plan amendments	-	-
Benefits paid from the trust	(2,752)	-
Direct benefit payments	(4,741)	(7,351)
Net actuarial (gain) loss	(188,975)	108,822
Accumulated benefit obligation, end of year	$ 341,465	$ 499,650
Change in fair value of plan assets:		
Fair value of plan assets, beginning of year	$ 1,007	$ -
Actual return on plan assets	8	7
Employer contributions to plan	3,500	1,000
Employer direct benefit payments	3,071	5,712
Employee contributions	1,670	1,639
Benefits paid from the trust	(2,752)	-
Direct benefit payments	(4,741)	(7,351)
Fair value of plan assets, end of year	$ 1,763	$ 1,007
Reconciliation of funded status:		
Funded status	$ (339,702)	$ (498,643)
Current liabilities	(6,424)	(6,872)
Noncurrent liabilities	(333,278)	(491,771)
Accumulated postretirement benefit liability included in the Consolidated Statements of Financial Position	$ (339,702)	$ (498,643)

Changes in plan assets and benefit obligations recognized in net assets:		
New prior service cost	$ -	$ -
Net (gain) loss arising during the year	(188,963)	108,815
Amortization recognition of prior service credit	15,566	15,566
Amortization recognition of net gain (loss)	188,963	(108,815)
Total recognized in net assets	$ 15,566	$ 15,566
Estimated amount that will be amortized from accumulated net assets over the next fiscal year:		
Prior service credit	$ 15,566	$ 15,566
Total estimated amount to be amortized from other plan changes over the next fiscal year	$ 15,566	$ 15,566
Components of net periodic benefit cost:		
Service cost	$ 21,246	$ 13,588
Interest cost	15,367	15,297
Expected return on plan assets	(20)	-
Amortization of prior service cost	(15,566)	(15,566)
Immediate recognition of net actuarial (gain) loss	(188,963)	108,815
Net periodic benefit cost	$ (167,936)	$ 122,134
Amounts recorded in net assets not yet amortized as components of net periodic benefit cost:		
Prior service cost	$ (40,677)	$ (56,243)
Amount recognized as an increase in net assets	$ (40,677)	$ (56,243)

The discount rate assumed in determining the actuarial present value of accumulated postretirement benefit obligations was 2.60% and 3.10% as of August 31, 2020 and 2019, respectively.

The average health care cost trend rate assumptions used to determine the accumulated postretirement benefit obligations as of August 31, 2020 and 2019 are summarized in the following table.

	August 31,2020 Medical		August 31,2019 Medical	
	Pre-65	Post-65	Pre-65	Post-65
Weighted-average assumptions to determine benefit obligations:				
Health care cost trend rate				
Immediate trend rate	5.74%	5.00%	5.93%	5.00%
Ultimate trend rate	4.50%	4.50%	4.50%	4.50%
Year of ultimate trend rate	2039	2039	2039	2039

As an indicator of sensitivity, a 1% increase in the assumed health care cost trend rate would increase the total service cost and interest cost components by $17.4 million for the fiscal year ended August 31, 2020 and increase the accumulated postretirement benefit obligation by $62.1 million as of August 31, 2020. A 1% decrease in the assumed health care cost trend rate would decrease the total service cost and interest cost components by $9.5 million for the fiscal year ended August 31, 2020 and decrease the accumulated postretirement benefit obligation by $49.4 million as of August 31, 2020.

Health coverage is provided to employees who qualify for the Institute's long-term disability benefit until the age of 65. This postemployment benefit cost was ($1.4) million and $0.4 million for the years ended August 31, 2020 and 2019, respectively.

The postretirement benefit contributions equate to the benefit claims paid out under the plan. The postretirement benefits that are expected to be paid in each of the next five fiscal years, which reflects expected future service, and in the aggregate for the five fiscal years thereafter, are as follows:

(In thousands)

Fiscal Year	Expected Benefit Payments
2021	$ 8,187
2022	8,940
2023	9,720
2024	10,589
2025	11,373
2026 - 2030	69,707

Effective April 25, 2019, HHMI established a voluntary employee beneficiary association ("VEBA"), the Howard Hughes Medical Institute Retiree Welfare Benefit Plan Trust ("Trust"). The Trust is exclusively used to hold certain Institute contributions to be used for the payment of fund health benefits of certain of its retired employees and their spouses and dependents who are eligible for coverage. The Trust will be invested in a manner to meet the short-term liquidity demands relating to these obligations. The investment objectives are to preserve the principal of the Trust while obtaining a total rate of return commensurate with the level of assumed risk and liquidity requirements. Investments are limited to U.S. fixed income securities or funds of the same. The Institute's long-term strategic asset allocation guidelines given the Trust's long-term objectives and short-term constraints are summarized in the following table.

Asset Category	Policy Target	Target Range
Money Market / Liquidity Funds	10%	0% - 20%
Domestic Fixed Income Funds	90%	0% - 100%

The Institute's contribution on behalf of its retirees was $3.5 million for the year ended August 31, 2020. The Institute began paying some retiree plan benefits from the Trust during fiscal year 2020.

The following tables summarize the fair value of the Trust as of August 31, 2020 and 2019, respectively.

August 31, 2020
(In thousands)

Asset Category	Percentage of Contribution	Quoted Market Prices (Level 1)	Total Fair Value
Money Market / Liquidity Funds	0%	$ -	$ -
Domestic Fixed Income Funds	0%	-	-
Cash and cash equivalents	100%	1,763	1,763
Total		$ 1,763	$ 1,763

August 31,2019
(In thousands)

Asset Category	Percentage of Contribution	Quoted Market Prices (Level 1)	Total Fair Value
Money Market / Liquidity Funds	0%	$ -	$ -
Domestic Fixed Income Funds	0%	-	-
Cash and cash equivalents	100%	1,007	1,007
Total		$ 1,007	$ 1,007

14. INCOME TAXES

The provision for income taxes consists of the following for the year ended August 31, 2020:

(In thousands)

	2020	2019
Deferred federal	$ 7,504	$ 11,031
Deferred state	1,863	1,864
Benefit from income taxes	$ 9,367	$ 12,895

Deferred income taxes, net consists of the following as of August 31, 2020 and 2019, respectively:

(In thousands)

	2020	2019
Total net operating loss carryforward	$ 114,293	$ 112,939
Less: Valuation allowance	(110,766)	(100,044)
Deferred income taxes	$ 3,527	$ 12,895

Under the provisions of the Act, net operating loss carryforwards generated prior to the 2018 tax year may be applied toward future taxable unrelated business income generated from any unrelated business activity and will continue to expire over a period of twenty years. As of August 31, 2020, the Institute had estimated federal and state net operating loss carryforwards generated prior to the 2018 tax year of approximately $594.4 million, which will expire at various dates from 2027 through 2038. These net loss carryforwards result in a deferred tax asset of $100.3 million. Management determined that it is more likely than not that the benefits of some of the net operating loss carryforwards will not be realized in the future, and accordingly the Institute has provided a partial valuation allowance of $96.8 million related to these net operating loss carryforwards.

Net operating loss carryforwards generated in the 2018 tax year and future tax years may only be applied toward future taxable unrelated business income generated from the same business activity, are limited to 80% of the taxable unrelated business income generated in a single tax year, and no longer expire. As of August 31, 2020, the Institute had federal and state net operating loss carryforwards generated during and after the 2018 tax year totaling $91.4 million related to two unrelated business activities resulting in a deferred tax asset of $13.9 million. Management determined that it is more likely than not that the benefits of these net operating loss carryforwards will not be realized in the future, and accordingly the Institute has provided a full valuation allowance of $13.9 million related to these net operating loss carryforwards.

Net tax refunds due or received on income totaled approximately $0.1 million and $0.1 million for the years ended August 31, 2020 and 2019, respectively. Taxes paid on income totaled approximately $0.2 million and $0.9 million for the years ended August 31, 2020 and 2019, respectively.

15. MEDICAL RESEARCH ORGANIZATION

The Institute is classified as a medical research organization for federal income tax purposes under Section 170(b)(1)(A)(iii) of the Internal Revenue Code of 1986, as amended (the “Code”). The Institute is not a private foundation under Chapter 42 of the Code.

16. SUBSEQUENT EVENTS

Management has performed an evaluation of subsequent events through November 20, 2020, which is the date that the financial statements were issued, noting no events which materially affect the financial statements as of August 31, 2020.